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A Remarkable New Littoral *Rhamphomyia* Species (Diptera, Empididae) Representing a New Subgenus from Japan

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Abstract A new littoral species representing a new subgenus of the genus *Rhamphomyia* is described. The species has adult external features similar to those of the subgenus *Ctenempis*, but the male genital and pregenital segments are much simpler than in *Ctenempis*, and the female cerci are much short and stout, furnished with short strong thorn-like bristles, quite unique character state in the genus.

Key words: *Rhamphomyia*; littoral species; new subgenus; spinuliferous cercus; Kyushu.

Introduction

Rhamphomyia MEIGEN is a huge genus of the family Empididae and represented by several hundreds species mainly distributed in the Holarctic Region, and by a few in other regions excepting numerous Neotropical species which are usually treated as members of a different genus, *Macrostomus*. Almost all the known species of the genus are sylvicolous, while a few species occur in the arctic tundra, alpine meadow, and inland rocky habitats, which are covered with low shrubs or herbage. Members of this genus are rarely collected at habitat close to the sea shore, and as far as I know the true maritime species belonging to this genus is *R. (Ctenempis) mirabilis* SAIGUSA, 1963 from northern Hokkaido, which exclusively inhabits low sand dunes nearest to the shore line, but even in the case of this species the ground (sand) of the habitat is densely covered with *Rosa rugosa* and many maritime herbage. As most species of the subgenus *Ctenempis* are inhabitants of the arctic or alpine tundra or of the open spots in cool temperate and subarctic forests, the habitat of *mirabilis* may be interpreted as a modification of the inland grassland.

In spring of 1993, Messrs. T. YAMAMOTO and R. MATSUMOTO of Kyushu University collected many specimens of a small-sized species of *Rhamphomyia* at Koinoura beach near Fukuoka-shi in northern Kyushu. The species was found close to the shore line. Then, I visited the habitat, and confirmed that the species lived on sandy shore which is sparsely covered with low maritime herbs.

This *Rhamphomyia* species is undescribed and could not be assigned to any described subgenus of *Rhamphomyia* in having a peculiar combination of specialized characters. Therefore, at first I erect a new subgenus for the species, then describe

it and state its habit and habitat.

***Rhamphomyia (Thalassempis)* SAIGUSA, subgen. nov.**

Compound eyes much narrowly separated in male, much widely separated in female on frons; male frons with rows of curved setae. Antenna nearly as long as head, 1st segment moderately long, 3rd also moderately long for *Rhamphomyia*. Labrum as long as head height, slender; labium including labella normal for the genus. Propleuron and prosternum entirely clothed with hairs. Dorsocentrals multiserial, scutellum with 8–10 marginal setae. Legs slender, clothed with weak hairs and bristles. Wing with discal cell normal in size, more or less pointed apically; CuA+CuP complete, though somewhat weakened for most of its length. Male abdomen normal, only the modification being the lateral margins of 8th abdominal sternum which are strongly sclerotized and overlap the lateral margins of 8th abdominal tergum. Female abdomen unique, clothed with erect or proclinate, bluntly ended, stiff bristles; cercus short and wide, bearing a number of minute strong spine-like bristles.

Type species: *Rhamphomyia (Thalassempis) litoralis* SAIGUSA, sp. nov.

Remarks: The above-mentioned combination of characters is somewhat similar to that of the subarctic and arctic subgenus *Ctenempis* FREY, 1935, but it has peculiar ornamentations of the pregenital segments in the male, and simple slender female cerci (except for *R. mirabilis*, whose female cerci are much shortened). The halteres of the subgenus *Ctenempis* are all whitish, while in the new subgenus they are entirely black.

***Rhamphomyia (Thalassempis) litoralis* SAIGUSA, sp. nov.**

♂. Colouration. Body and legs black, head and thoracic nota densely dark brown pollinose, when viewed anterodorsally anterior 1/2 of mesonotum dark greyish brown with a slight cupreous tinge, and marked with a pair of dull blackish subdorsal stripes between rows of acrostichals and dorsocentrals, and posterior 1/2 dull black; thoracic pleura and coxae dark greyish brown pollinose with a slight cupreous tinge, other parts of legs thinly greyish brown pollinose. Wing tinged with pale grey, microtrichia more or less paled; veins dark brown, stigma pale brown. Halter black. Abdomen and genitalia dark brown pollinose, pollinosity thinner than that on thorax. Bristles and hairs black, those of the following parts yellow or yellowish; ventral portion of occiput, prothoracic pleura and sternum, “metapleural” fan, and abdomen (except genital lamella).

Structure. Head spherical, somewhat bulged on posteroventral portion, 5/6 as long as high. Compound eyes seeming to be holoptic, but actually much narrowly separated on frons with upper facets more or less enlarged, but much smaller than anterior ocellus. Frons with 1–2 rows of short, slightly curved setae on its entire

length; face broad and bare. Ocellar tubercle prominent, clothed with several fine hairs; occiput rather densely clothed with longish setae and those of postocular area are longer than other setae. Antenna as long as head, 1st segment $1.4\text{--}1.5\times$ as long as 2nd, both evenly clothed with longish setae; 3rd $1.2\text{--}1.4\times$ as long as 2 basal segments together, evenly tapering apically; style $0.3\text{--}0.4\times$ as long as 3rd segment. Labrum slightly shorter than head height, slender, weakly tapered medially, only slightly thickened basally; labium of usual *Rhamphomyia* type; palpus moderately long, curved, bearing long setae ventrally.

Thorax. Chaetotaxy: Entire surface of prothorax clothed with yellow hairs; acrostichals and dorsocentrals long and fine, the former irregularly biserial, the latter multiserial, both reclinate or erect on anterior $1/2$ of mesoscutum, proclinate on posterior $1/2$; side of scutum fairly densely clothed with setae similar to dorsocentrals; 1–2 strong notopleurals, 0–2 supra-alars, 1 postalar bristle strong; scutellum with 8–10 marginal setae, of which innermost pair is strong; “metapleural” fan fairly dense, sometimes mixed with dark setae.

Legs long and slender. Front leg: cx_1 clothed with longish fine hairs anteriorly; f_1 short setose above, anteroventral setae longish, scattering basally, posterior setae erect, posteroventral setae absent; t_1 much short pilose beneath, bearing many long bristles ($1.5\text{--}2\times TT1$) on anterodorsal and posterodorsal surfaces; metatarsus short setose beneath, with several long posterodorsal bristles, 2nd to 5th tarsomeres short pilose with a few apical setae on 2nd and 3rd tarsomeres. Middle leg: cx_2 setose as cx_1 ; f_2 short setose above, its ventral surface almost bare except short scattering hairs towards base; t_2 and tar_2 short setose, the former with several long posterodorsal bristles ($1.5\times TT2$). Hind leg: cx_3 with long fine hairs except on posterior surface; f_3 slightly thickened ventrally beyond the middle, short setose, anteroventral and posteroventral setae also short and rather fine, $0.5\times$ as long as $TF3$; t_3 slender and straight, short setose, its anterodorsal and posterodorsal setae bristle-like, longer distally (as long as $TT3$); tar_3 longish setose on dorsal surface of metatarsus and apical parts of 2nd to 4th tarsomeres, metatarsus with some stiff setae beneath.

Wing moderately broad, alula moderately developed, axillary incision rather deep and acute, nearly 45° , axillary lobe well developed; discal cell moderately large, $0.55\text{--}0.59\times$ as long as apical section of M_1 ; middle section of M_4 $0.43\text{--}0.52\times$ as long as its apical section, anterior discal crossvein short and outwardly oblique, posterodistal corner of the cell obtuse, nearly 110° ; $CuA+CuP$ (of SAIGUSA, 1989 and of WOOTTON and ENNOS, 1989; A_1 of authors) somewhat weakened but complete for its entire length except apical $1/5\text{--}1/4$ which is distinctly stronger; pterostigma moderately large, occupying anterior $2/3$ of cell R_{2+3} , with its apex reaching to the middle of tips of veins R_1 and R_{2+3} .

Abdomen moderately slender, its setae and hairs fine, those on 3 anterior segments long, those of posterior segments much shorter; lateral margins of 8th sternum polished and more or less covering its tergum, otherwise no modification on pre-genital segments. Genitalia (Fig. 1) simple in structure; tergal lobe oblong, dorsal

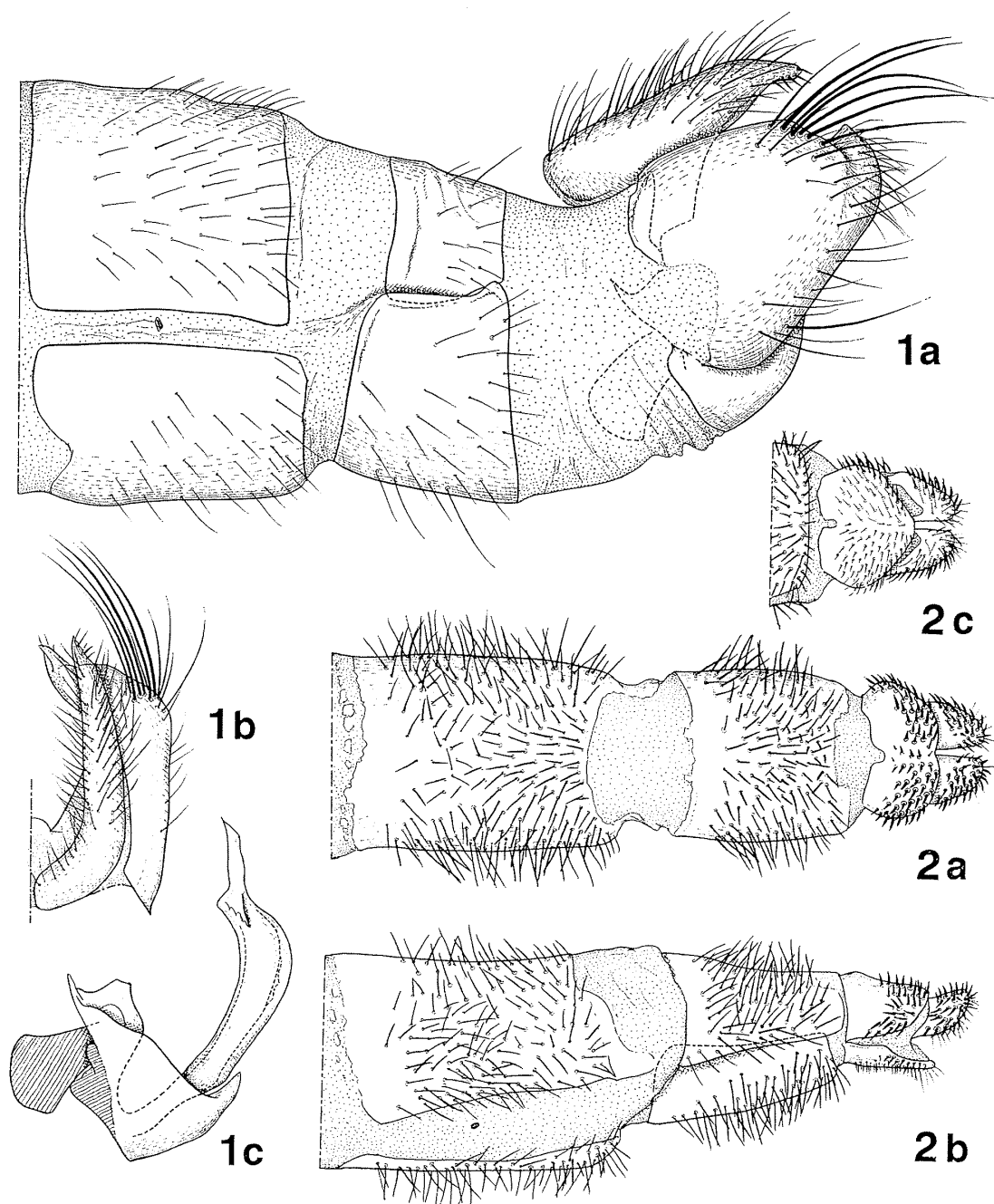


Fig. 1. Male genitalia of *Rhamphomyia (Thalassempis) litoralis* SAIGUSA, sp. nov. — a, Lateral aspect; b, dorsal aspect of left cercus and tergal lobe; c, lateral aspect of ventral plate and phallus.

Fig. 2. Female terminalia of *Rhamphomyia (Thalassempis) litoralis* SAIGUSA, sp. nov. — a, Dorsal aspect; b, lateral aspect; c, ventral aspect of apical portion.

margin weakly rounded subapically, and bearing a row of 7–10 very strong, inwardly curved bristles, distal margin weakly produced, short setose; cercus more or less elongate, slender, and much tapered apically into a short process which is armed with a few minute spinules, apex of cercus not extending beyond tip of tergal lobes, dorsal portion of cercus bearing longish bristles; cercus and tergal lobe not fused with each other; ventral lobe not much developed, with a small ventromedial projection; aedeagus short, not extending dorsally beyond the dorsal margin of cercus, much curved basally, then somewhat thickened at the middle, and curved posteriorly beyond the thickened portion, there the aedeagus bearing a pair of proximally directing spines which are serrate.

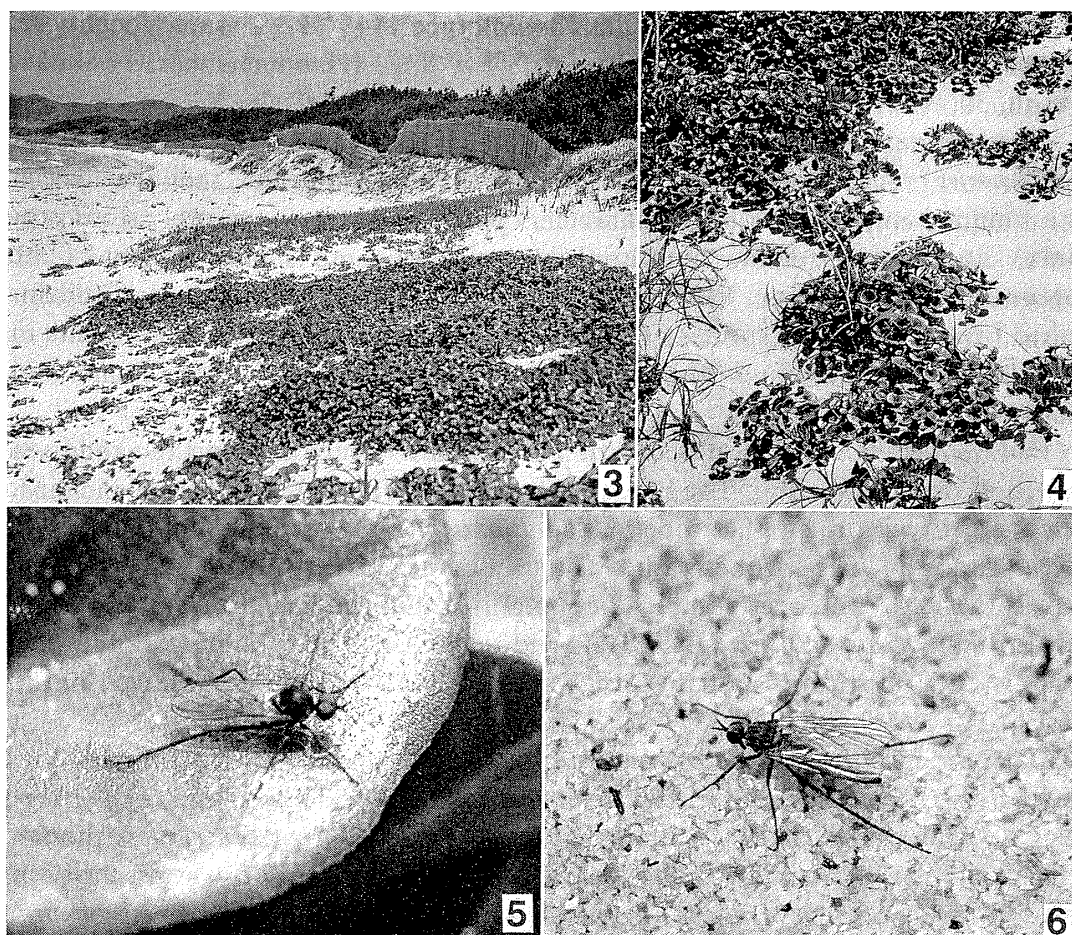


Fig. 3. Landscape of the habitat of *Rhamphomyia* (*Thalassempis*) *litoralis* SAIGUSA, sp. nov.; colony of *Calystegia Soldanella* in front, that of *Carex kobomugi* behind, and *Pinus thunbergi* forest in back ground. Fig. 4. A microhabitat of *R. (Thalassempis) litoralis* SAIGUSA, sp. nov. Fig. 5. A male of *R. (Thalassempis) litoralis* SAIGUSA, sp. nov. sitting on a leaf of *Calystegia Soldanella*. Fig. 6. A female of *R. (Thalassempis) litoralis* SAIGUSA, sp. nov. sitting on sand. All the photographs were taken at Koino-ura, the type locality, on the 26th April, 1993.

Length: Body 3.6–4.9 mm; wing 3.7–4.8 mm.

♀. Similar to ♂, but differing as follows. Pollinosity more greyish, frons and face light greyish brown pollinose, the former much broad, at the middle $1.4\times$ as wide as ocellar tubercle, as long as wide, with a row of setae close to eye margin. Hairs and bristles of body and legs much shorter. Setae of posterior abdominal segments black, stiff, blunt-ended, and mostly erect or proclinate. Terminalia (Fig. 2): The 9th segment and cercus bearing short thorn-like erect bristles; cercus much short and broad.

Length: Body 3.4–5.4 mm; wing 3.8–4.8 mm.

Holotype ♂, Koino-ura, Tsuyazaki-machi, Fukuoka, Kyushu, 26. iv. 1993, (T. SAIGUSA & C. SUGIMOTO), in SAIGUSA's collection in Biological Laboratory, College of General Education, Kyushu University.

Paratypes: 40 ♂ 28 ♀, same data as holotype; 14 ♂ 12 ♀, same locality, 25. iv. 1993 (T. YAMAMOTO & R. MATSUMOTO); 18 ♂ 8 ♀, Ikinomatsubara, Fukuoka, Kyushu, 30. iv. 1993 (R. MATSUMOTO).

Distribution. Japan (Kyushu).

Remarks. As stated in the description of the new subgenus, this new species has a unique combination of the characters (pilose male frons, entirely setose prothorax, short setose femora, multiserial dorsocentrals, etc.) similar to that of the subgenus *Ctenempis* (FREY, 1955; SAIGUSA, 1963). But the species is easily distinguished from any known species of *Ctenempis* by its simple pregenital segments in the male, peculiarly spinose 9th abdominal segment and cerci in the female, and black halteres in both sexes.

Biological note. The adults of this new species occur only on the sandy sea shore in northern Kyushu. The beach of its habitat (Fig. 3) is moderately inclined. The zone between the highest tide line and *Pinus thunbergi* forest is about 10–30 m wide and sandy. This zone is rather sparsely covered with littoral herbs such as *Carex kobomugi* (Japanese name: Kôbômugi), *Calystegia Soldanella* (JN: Hamahirugao), *Lathurus maritimus* (JN: Hama-endô) (Fig. 4). The habitat of the new species is confined to this narrow zone, and the adults were never observed in the forest of *P. thunbergi*.

Both the males and females usually sit on leaves of the above-mentioned low plants (Fig. 5), but they also often sit directly on sand widely stretching their legs (Fig. 6), which is an extremely peculiar habit in the genus *Rhamphomyia*. Although I and other collectors could not observe their mating behaviour or swarms, the both sexes of this species flew much close to the sandy ground and never flew up beyond some 50 cm from the ground when they were disturbed by us. This flying habit is also unique in the genus, and I have observed similar habit only for *Rhamphomyia longiseta* SAIGUSA, 1964, which inhabits the alpine meadow at Mt. Taisetsuzan in Hokkaido, and flies in small swarms close to the ground (lower than 50 cm) (SAIGUSA, 1964).

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Chalcidoids Reared from *Elasmus japonicus* ASHMEAD (Hymenoptera, Elasmidae), a Parasite of Paper Wasps

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Key words: *Elasmus japonicus*: parasites; *Pediobius*; *Dimmockia secunda*;
Macroneura; *Polistes snelleni*.

Elasmus japonicus ASHMEAD is a common gregarious parasite of paper wasps. The following three eulophid species and one eupelmid species are recorded for the first time as the parasites of *Elasmus japonicus*. All specimens were obtained from nests of